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Response to Seasonal Changes in Blood Pressure: Possible Interaction Between Sunlight and Brain Serotonin

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Drs Dhar and Lambert¹ correctly note that the potential relationship between sunlight and seasonal blood pressure (BP) changes is not investigated in our study.² We agree that this interaction, possibly mediated, at least in part, by changes in brain monoamine concentration, should not be neglected. In addition, the UV-dependent cholecalciferol formation is a potential modifier of the results: the BP-lowering effects of cholecalciferol having recently been reported.³ However, a reliable measurement of sunshine exposure in our patients was not available.

The difficulty of obtaining true measurements of subjects' exposure to weather-related factors is a major problem when investigating the effects of climate on human health. As an example, the estimate of exposure to weather changes performed by measuring outdoor temperature is not likely to be a very accurate assessment because of the time spent indoors in a climatized environment. In our study, this exposure misclassification was controlled by measuring personal level temperature. With this approach, temperature and seasonality (objectively assessed as the number of hours between sunrise and sunset) were found to independently affect ambulatory BP (daytime systolic BP being negatively affected by temperature, daylight hours being positive predictors of nighttime systolic BP).

Obtaining a reliable measurement of bright sunshine exposure is more problematic, however, because available conventional methods (bright sunshine hours directly measured at the nearest available ground sensors, or using satellite data) give only a rough estimate of the final effect of the sun on study participants. In addition to time spent indoors or to the time spent away from the indicated home addresses, dressing habits⁴ and also use of sunglasses might influence data. Hopefully our study, together with the correspondence it has generated, will stimulate additional research to examine such associations.

Disclosures

None.

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